

IZUMI
Serial No. 10/520,928
Response to Office Action dated June 15, 2006

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1 (Previously Presented): A photoelectric conversion device, comprising: a first insulating layer, formed so as to cover a photoelectric conversion element and a connection electrode that are formed on a substrate, where the first insulating layer has an opening portion extending to the connection electrode; and a conductive layer formed on the first insulating layer, wherein the conductive layer is formed so as to be connected via the opening portion to the connection electrode and wherein the connection electrode is provided in a periphery of an active area.

Claim 2 (Previously Presented): A photoelectric conversion device, comprising: a first insulating layer formed so as to cover a photoelectric conversion element formed on a substrate; and a conductive layer formed on the first insulating layer, wherein the conductive layer is formed so as to be connected to a connection electrode, formed on the substrate, via an exposing portion provided on at least part of an end face on an outer boundary of the first insulating layer in order to expose at least a part of the connection electrode.

Claim 3 (Previously Presented): A photoelectric conversion device, comprising: a first insulating layer formed so as to cover a photoelectric conversion element formed on a substrate and a pixel capacitor section connected to the photoelectric conversion element; and a conductive layer formed on the first insulating layer, wherein a thickness of the first insulating layer is thinner in an area positioned on or above the pixel capacitor section, in which capacitor electrodes overlap, than in another area.

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Claim 4 (Original): The photoelectric conversion device as set forth in claim 3, wherein: the first insulating layer includes an insulating protective film, formed so as to cover the photoelectric conversion element, which protects the photoelectric conversion element, and the first insulating layer has a relative dielectric constant which is higher in the insulating protective film than in a portion other than the insulating protective film.

Claim 5 (Previously Presented): The photoelectric conversion device as set forth in claim 1, wherein the first insulating layer includes: an inorganic insulating film formed so as to cover the photoelectric conversion element; and an organic insulating film formed on the inorganic insulating film.

Claim 6 (Previously Presented): The photoelectric conversion device as set forth in claim 1, further comprising a second insulating layer formed on or above the conductive layer, which is formed on the first insulating layer.

Claim 7 (Currently Amended): The photoelectric conversion device as set forth in claim 1, further comprising a conversion layer, which is formed on or above the conductive layer formed on the first insulating layer, which converts non-visible radiation into visible light.

Claim 8 (Previously Presented): An image scanning apparatus, comprising the photoelectric conversion device as set forth in claim 1, wherein the photoelectric conversion device is used as an image scanning sensor.

Claims 9-13 (Canceled).

Claim 14 (Previously Presented): The photoelectric conversion device as set forth in claim 2, wherein the first insulating layer includes: an inorganic insulating film formed so as to cover the photoelectric conversion element; and an organic insulating film formed on the inorganic insulating film.

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Claim 15 (Previously Presented): The photoelectric conversion device as set forth in claim 2, further comprising a second insulating layer formed on or above the conductive layer, which is formed on the first insulating layer.

Claim 16 (Currently Amended): The photoelectric conversion device as set forth in claim 2, further comprising a conversion layer, which is formed on or above the conductive layer formed on the first insulating layer, which converts non-visible radiation into visible light.

Claim 17 (Previously Presented): An image scanning apparatus, comprising the photoelectric conversion device as set forth in claim 2, wherein the photoelectric conversion device is used as an image scanning sensor.

Claim 18 (Previously Presented): The photoelectric conversion device as set forth in claim 3, wherein the first insulating layer includes: an inorganic insulating film formed so as to cover the photoelectric conversion element; and an organic insulating film formed on the inorganic insulating film.

Claim 19 (Previously Presented): The photoelectric conversion device as set forth in claim 3, further comprising a second insulating layer formed on or above the conductive layer, which is formed on the first insulating layer.

Claim 20 (Currently Amended): The photoelectric conversion device as set forth in claim 3, further comprising a conversion layer, which is formed on or above the conductive layer formed on the first insulating layer, which converts non-visible radiation into visible light.

Claim 21 (Previously Presented): An image scanning apparatus, comprising the photoelectric conversion device as set forth in claim 3, wherein the photoelectric conversion device is used as an image scanning sensor.

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Claim 22 (Withdrawn): A photoelectric conversion device comprising:
an array of pixels;
a connection electrode coupled to a specified potential and formed in a periphery of an active area corresponding to the array of pixels;
a first insulating layer substantially covering the array of pixels and at least partly covering the connection electrode;
a conductive layer formed on the first insulating layer to substantially cover the array of pixels,
wherein the first insulating layer includes a first opening therein and the conductive layer is directly connected to the connection electrode via the first opening.

Claim 23 (Withdrawn): The photoelectric conversion device as set forth in claim 22, wherein
pixels of the array of pixels comprise thin-film transistor sections and capacitor sections,
the first insulating layer includes second openings therein above the capacitor sections,
and
the conductive layer is provided in the second openings so as to be insulatively spaced from electrodes of the thin-film transistor sections to thereby provide additional pixel capacitances.

Claim 24 (Withdrawn): The photoelectric conversion device as set forth in claim 23, wherein the conductive layer is insulatively spaced from the electrodes of the thin-film transistor sections by at least a second insulating layer having a dielectric constant higher than a dielectric constant of the first insulating layer.

Claim 25 (Withdrawn): The photoelectric conversion device as set forth in claim 23, wherein the thin-film transistor sections each comprises two transistors.

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Claim 26 (Withdrawn): The photoelectric conversion device as set forth in claim 22, wherein the pixels of the array of pixels comprise thin-film transistor sections and photodiodes.

Claim 27 (Withdrawn): The photoelectric conversion device set forth in claim 26, further comprising:
a conversion layer comprising a light-emitting material for converting non-visible radiation into light.

Claim 28 (Withdrawn): A photoelectric conversion device comprising:
an array of pixels;
a connection electrode coupled to a specified potential and formed in a periphery of an active area corresponding to the array of pixels;
a first insulating layer substantially covering the array of pixels; and
a conductive layer formed on the first insulating layer to substantially cover the array of pixels,
wherein an exposing portion is formed at least partly by an end face of an outer peripheral portion of the first insulating layer to expose at least part of the connection electrode, and
wherein the conductive layer is connected to the connection electrode via the exposing portion.

Claim 29 (Withdrawn): The photoelectric conversion device as set forth in claim 28, wherein the connection electrode is laterally spaced apart from the end face of the outer peripheral portion of the first insulating layer.

Claim 30 (Withdrawn): The photoelectric conversion device as set forth in claim 28, wherein
pixels of the array of pixels comprise thin-film transistor sections and capacitor sections,

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the first insulating layer includes second openings therein above the capacitor sections, and

the conductive layer is provided in the second openings so as to be insulatively spaced from electrodes of the thin-film transistor sections to thereby provide additional pixel capacitances.

Claim 31 (Withdrawn): The photoelectric conversion device as set forth in claim 30, wherein the conductive layer is insulatively spaced from the electrodes of the thin-film transistor sections by at least a second insulating layer having a dielectric constant higher than a dielectric constant of the first insulating layer.

Claim 32 (Withdrawn): A photoelectric conversion device comprising:
an array of pixels;

a connection electrode coupled to a specified potential and formed in a periphery of an

~~active area~~ ~~corresponding~~ to the array of pixels;

a first insulating layer substantially covering the array of pixels and at least partly covering the connection electrode; and

a conductive layer formed on the first insulating layer to substantially cover the array of pixels,

wherein the first insulating layer includes a first opening therein and the conductive layer is connected to the connection electrode via the first opening,

wherein pixels of the array of pixels comprise thin-film transistor sections and capacitor sections,

wherein the first insulating layer includes second openings therein above the capacitor sections, and

wherein the conductive layer is provided in the second openings to be insulatively spaced from electrodes of the thin-film transistor sections by at least a second insulating layer to thereby provide additional pixel capacitances.

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Claim 33 (Withdrawn): An image scanning apparatus comprising:
a backlight; and
a photoelectric conversion device as set forth in claim 32.